EMX-QM77

Intel® QM77 with Core™ i7 / i5 / i3 Mini-ITX Motherboard

Quick Installation Guide

1st Ed – 23 July 2012

Part No: E2017EMXQ00R

FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

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1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

1.2 Packing List

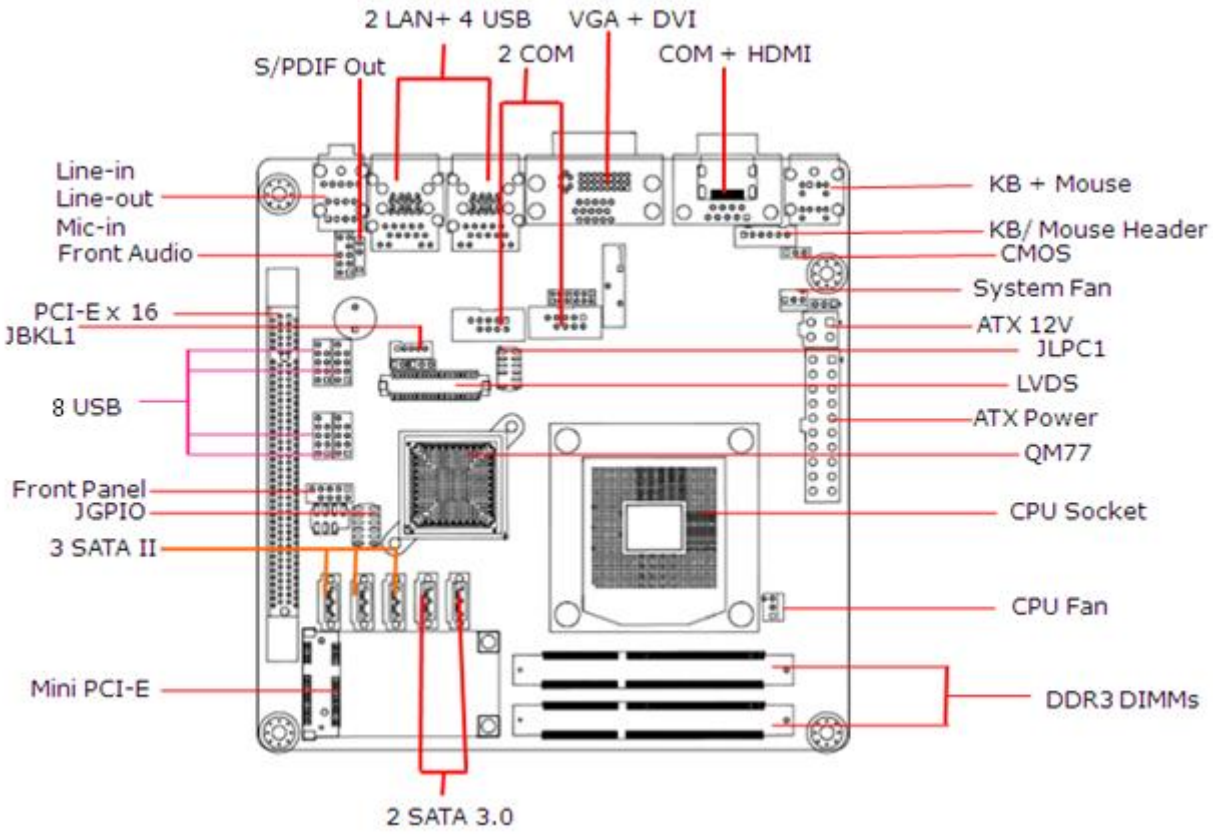
Before you begin installing your single board, please make sure that the following parts have been shipped.

- 1 x EMX-QM77 Mini-ITX Motherboard
- 1 x CD-ROM contains OS drivers/QIG/User's Manual
- 2 x COM cable (9-pin)
- 1 x SATA cable (2 in 1,7-pin)
- 1 x I/O shield

If any of the above items is damaged or missing, contact your retailer.

2. Hardware Configuration

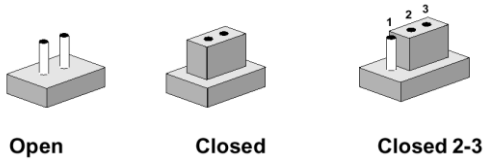
2.1 Product Overview



2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

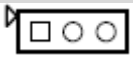
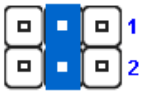
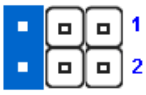
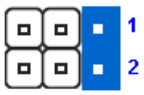
The following tables list the function of each of the board's jumpers and connectors.

Specifications

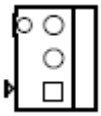
System	
CPU	Intel Core i7/ i5/ i3 Pentium® / Celeron® Mobile CPU
BIOS	AMI 64Mb SPI ROM
System Chipset	Intel QM77
I/O Chipset	Nuvoton NCT6776F
Memory	Two 204-pin SODIMM support up to 16GB dual channel DDR3 1600/ 1333 SDRAM, Non-ECC
Watchdog Timer	Reset: 1 to 255 sec/min per step
H/W Status Monitor	Monitoring temperature, voltage and cooling fan status. Auto throttling control when CPU overheats.
Expansion Slots	1 PCI-E x 16 Gen. 3, 1 Mini PCI-E, 1 CFast
Power State	S1, S3, S4, S5
TPM	TPM 1.2 by Infineon SLB9635
RAID	RAID 0, 1, 5 and 10
Wake up / Boot on LAN	LAN (WOL,PXE)

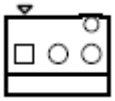
Smart Fan Control	Yes
Display	
Chipset	Intel GMA HD 4000 /2500 (22nm) , 3000/2000(32nm)
Display Memory	Shared Memory, up to 256MB
Dual Display	VGA + LVDS, VGA + HDMI, VGA + DVI, LVDS + HDMI, LVDS + DVI, HDMI + DVI
VGA	Onboard, supports max resolution 2048 x 1536 (@75Hz)
LVDS	Onboard 24-bit LVDS, supports max resolution 1920 x 1200
HDMI	Onboard HDMI 1.3, supports max resolution 1920 x 1200
DVI	Onboard DVI-D, supports max resolution 1920x1200
LVDS Backlight	Yes
Audio	
Audio Codec	Realtek AL892, 5.1 Channel HD Audio
Audio Interface	Line-in, line-out, Mic-in, S/PDIF Out, Front Audio Header
Ethernet	
LAN1	Intel 82579LM GbE LAN supports iAMT 8.0
LAN2	Intel 82583V GbE LAN

Jumpers

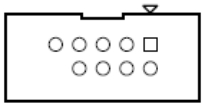
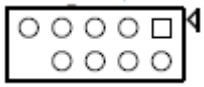
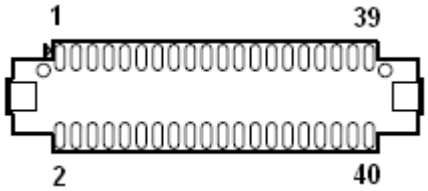
Label	Function	Note
JCMOS1	**Clear CMOS** 	**Normal *** **Clear CMOS**
JCOMPWR2 **JCOMPWR3**	**COM2 COM3** **RI/+5V/+12V Select** 	**RI**  **+5V**  **+12V** 
JLVDS_BKL1	**BL POWER SELECT** 1.+5V 2. BRIGHT 1 3. 3.3V	**5V** **3.3V**
JPSON	 1.ATSEL IN 2.PWRBT 3.ATXSEL	**AT MODE** **ATX MODE**

Connectors

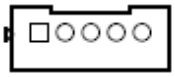
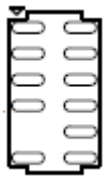
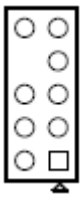
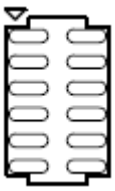
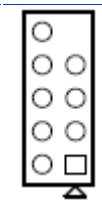
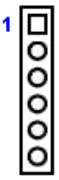
Label	Function	Note
CPU_FAN	**CPU Fan Connector** 	1.GND 2.CPUFAN1_VCC(PWM) 3.CPUFAN1_IO

SYS_FAN1	**System Fan Connector**		1.GND 2.SYSFAN1_VCC(PWM) 3.SYSFAN1_IO

Connectors

Label	Function	Note
COM2 **COM3**	**Serial Port Connector**	 1.DCD 6.DSR 2.RXD 7.RTS 3.TXD 8.CTS 4.DTR 9.RI/PWR 5.GND
F_PANEL1	**Intel Front Panel connector**	 1.HDDLED+ 2.POWERLED+ 3.HDDLED- 4.POWERLED- 5.GND 6.PWSWITCH 7.RESET 8.GND 9.NC
JLVDS	**24-bit LVDS Connector**	

39.VDD(+12V)	40.VDD(+12V)
37.GND	38.GND
35.LVDS_B_CK-	36.LVDS_A_CK-
33.LVDS_B_CK+	34.LVDS_A_CK+
31.GND	32.GND
29.LVDS_B3-	30.LVDS_B2-
27.LVDS_B3+	28.LVDS_B2+
25.GND	26.GND
23.LVDS_B1-	24.LVDS_B0-
21.LVDS_B1+	22.LVDS_B0+
19.GND	20.GND
17.LVDS_A3-	18.LVDS_A2-
15.LVDS_A3+	16.LVDS_A2+
13.GND	14.GND
11.LVDS_A1-	12.LVDS_A0-
9.LVDS_A1+	10.LVDS_A0+
7.GND	8.GND
5.I2C_CLK	6.I2C_DATA
3.VDD(+3.3V)	4.VDD(+5V)
1.VDD(+3.3V)	2.VDD(+5V)

JBKL	**LCD Inverter Connector**		1.+12V 2.GND 3.ENBKL 4.VR 5.+5V
JLPC1	**LPC Connector**		1.NC 2.+3.3 3.LPC_AD3 4.PRST_SIO# 5.LPC_AD1 6.LPC_AD2 7.LPC_FRAME# 8.LPC_AD0 9. 10.GND 11.CLK33M_LPC 12.GND
FPAUD1	**Audio Mic.-In & Line-Out Connector**		10.LINE_JD 9.LIN2_L 8.NC 7.FIO_SENSE 6.MIC2_JD 5.LIN2_R 4.PRESENSE 3.MIC2_R 2.GND 1.MIC2_L
JGPIO1	**GPIO Connector**		1.SIO_GPIO0 2.SIO_GPIO4 3.SIO_GPIO1 4.SIO_GPIO5 5.SIO_GPIO2 6.SIO_GPIO6 7.SIO_GPIO3 8.SIO_GPIO7 9.SMB_CLK_RESUME 10.SMB_DAT_RESUME 11.GND 12.VCC GPIO
SPDIF_OUT	**SPDIF OUT Connector**		1.+5V 2. 3.SPDIF OUT 4.GND
USB56 **USB78** **USB910** **USB1112**	**USB 2.0 Connector**		9.NC 8.GND 7.GND 6.USB+ 5.USB+ 4.USB- 3.USB 2.USB+5V 1.USB+5V
KBMS2	**KB/Mouse Connector**		1.KB b CLK 2.KB b DAT 3.MS b DAT 4.GND 5.VCC_KBMS 6.MS_b_CLK